

# Rhodora

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# Rhodora

JOURNAL OF

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## THE NORTH AMERICAN ALLIES OF SCIRPUS LACUSTRIS.

AGNES CHASE.

(Plates 52 and 53.)

IN the hope of clearing up confusion in regard to our Great Bulrush the accompanying plates have been prepared and the following descriptions drawn up after study of the specimens of this group in the National and Gray Herbaria, herbaria of the New England Botanical Club and of the Field Columbian Museum, and in a few private herbaria.

*Scirpus validus* was clearly described by Vahl and this name was taken up by the earlier American botanists. From the brief description of *S. lacustris* in Species Plantarum (p. 48) it is impossible to decide which species of the group Linnaeus had in mind, but the type locality is given as "Europae," and the descriptions of *S. lacustris* L. by Kunth (Enum. Pl. 2: 164), Vahl (Enum. Pl. 2: 268), and Reichenbach (Icones Fl. Germ. 7: 41, plate 106) clearly describe the specimens with 3-cleft styles from Scandinavia, Germany and France found in the above herbaria. This European *S. lacustris* is a plant with spikelets usually in capitate clusters; smooth scales (the excurrent tip of the midrib alone being scabrous) one-fourth or more longer than the achene; style 3-cleft; achene 1.7-1.8 by 3 mm., triquetrous, the ventral facet broadest and the dorsal angle obtuse; and the involucre bract flat or plano-convex, the margins scabrous. The European bulrush with 2-cleft style, described as *S. Tabernaemontani* Gmel. Fl. Bad. 1: 101, and figured in Reichenbach's Icones (7: 41, plate 107), is, to judge from descriptions, plate and numerous speci-



mens in the Gray Herbarium, clearly distinct from *S. lacustris* L., though reduced to synonymy in the Kew Index. To this form our American *S. validus* and *S. occidentalis* are more nearly allied than to *S. lacustris* L.

The achene-characters here given are based on study of mature plants; and achenes for measurement and illustration are in each case taken from the lower part of the spikelet, the upper achenes being found less characteristic and almost invariably smaller than the lower ones.

#### KEY TO AMERICAN ALLIES OF SCIRPUS LACUSTRIS.

Achene lenticular, style 2-cleft:

Bristles 4-6, slender:

Achene 2 mm., scales but little longer . . . . . *S. validus.*

Achene 2.5-3 mm., scales  $4\frac{1}{3}$  longer . . . . . *S. occidentalis.*

Bristles 2, broad, ciliate below . . . . . *S. Californicus.*

Achene triquetrous, style 3-cleft; bristles 2-4, fragile,

unequal . . . . . *S. heterochaetus.*

SCIRPUS VALIDUS Vahl Enum. Pl. 2: 268 (1806).

*Scirpus lacustris* of American authors not Linnaeus.

Perennial: rootstock horizontal: culm erect, 1.2-2.5 m. high, 0.8-2.5 cm. in diameter at base, attenuate upward, terete, soft, usually flattened in dried specimens, light green, smooth, minutely striate, leafless, or the basal sheaths produced into narrow acuminate blades (1-15 cm. long); sheaths membranaceous with a hyaline border and ligule, usually lacerate: inflorescence a decom-pound, lax, one-sided, more or less drooping umbel of numerous spikelets subtended by a single erect, attenuate, terete bract, channeled only at the base (1-6 cm. long); rays 1-6 cm. long, slender, plano-convex, the margins scabrous; bractlets vaginate, light brown to chestnut, acute or acuminate scarious, pubescent toward the summit, fimbriate-ciliate, the midrib excurrent into a scabrous tip; secondary rays 0.5-4 cm. long, slender: spikelets usually solitary or in capitate clusters of 2-3 (rarely 4 or 5) ferruginous to chestnut, ovoid to oblong-ovoid, acute or becoming obtuse as terminal achenes mature, 3-4 by 5-10 (usually 7) mm.: scales equalling or slightly longer than the achenes and rounded over them, broadly ovate or nearly orbicular, obtuse or emarginate, spotted with chestnut or purplish brown, pubescent along the midrib and at the summit with thick stubby hairs, ciliate; the strong green or pale midrib exserted into a short scabrous tip: bristles 4-6 (usually 6) shorter, equalling or longer than the achene (usually slightly longer), reddish brown, retrorsely barbed: style 2-cleft to

near the base: achene fuscous or grayish black when fully ripe (flavescent before maturity often falling without turning dark), rounded obovoid, abruptly mucronate, 1.3–1.5 by 2 (rarely 2.2 or less than 2) mm., in section plano-convex, or the ventral side slightly convex above, hexagonally reticulate under a lens.

Type locality: "Habitat in Caribaeis."

Specimens examined. NOVA SCOTIA, Halifax (*Howe & Lang* 1602): ONTARIO (*Macoun* 34,583): MANITOBA (*Bourgeau*): MAINE, Fort Fairfield (*Fernald* 2091); Marshfield (*Fernald*); Cumberland Co. (*Ricker* 323); Monmouth (*Merrill* 1133); New Sharon (*Knowlton*); Sumner (*Parlin*); Wells (*Furbish*); South Chesterville (*Eaton*): NEW HAMPSHIRE, Pelham (*Knowlton*); Jaffrey (*Robinson* 327): VERMONT, Shelburne Pond (*Flynn*); Manchester (*Day* 200): MASSACHUSETTS, East Gloucester (*Swan*); Malden (*Collins*); Westford (*Manning*); Cambridge (*Perkins*); Pittsfield (*Hoffmann*): RHODE ISLAND, Providence (*Regeher & Collins*): CONNECTICUT, Southington (*Andrews* 425, *Bissell* 895); East Haven (*Winton*): NEW YORK (*Lucy* 2225, *Millsbaugh*): PENNSYLVANIA (*Heller*): VIRGINIA (*Small*): NORTH CAROLINA (*Coville* 57, *Vasey*): SOUTH CAROLINA (*Ravenel*): GEORGIA (*Harper* 160, 575): FLORIDA (*Simpson* 373, *Nash* 1262, *Biltmore Herb.* 3310): TEXAS (*Bigelow, Reverchon* 889): OHIO (*Selby* 321, *Young*): INDIANA (*Hill, Deam, Umbach, Young*): ILLINOIS (*M. S. Bebb, Stewart, V. H. Chase, A. Chase* 1136, 1677): MICHIGAN (*Clarke, Davis, Houghton, H. H. & D. R. Camp*): WISCONSIN (*Umbach*): MINNESOTA (*Mearns* 695, *Pammel* 437): IOWA (*Butler* 4, *Cratty, Fitzpatrick, Ball, Shimek*): KANSAS (*Shear* 239, *Norton* 549): NEBRASKA (*Clements* 2586, *Rydberg* 1276, 1388 in part — *Nat. Herb. no.* 210,395): MONTANA (*Shear* 397, *Rydberg* 2148, 3168): WYOMING (*A. Nelson* 454, 3651, 7605): COLORADO (*Wolf & Rothrock* 930, *Crandall* 510): ARIZONA (*MacDougal* 538): WASHINGTON (*Whited* 584, *Horner* 512): CALIFORNIA (*Orcutt, Heller* 5827): PORTO RICO (*Heller* 6290, *Sintenis* 3846): CUBA (*Wright* 713).

*Scirpus validus* Vahl is distinguished from *S. lacustris* L. by the 2-cleft style; by the lenticular achene  $\frac{2}{3}$  as large as that of *S. lacustris*; by the scales equalling or but little larger than the achenes, pubescent along the midrib and at the summit; and by the terete involucre bract.

This species shows comparatively little variation, the most notable being that of the Florida, West Indian and Yucatan specimens and *MacDougal* 538 from Arizona, which have scales longer and more pubescent, and bristles nearly or quite  $\frac{1}{2}$  longer than the achenes. As the type locality of *S. validus* is "in Caribaeis" it may be assumed that these subtropical specimens are the typical form, but the more



northern form is too close to it to be separated even as a variety. The achenes (excluding the bristles) are indistinguishable. Two specimens in the Gray Herbarium indicate a remarkable range for *S. validus*, or a very closely allied species. *Aitchinson* 465 and 689 from Afghanistan have the lax, drooping umbel of ferruginous spikelets and the general aspect of *S. validus*. The style is 2-cleft, the achenes, not fully mature, are flavescent, 2.1 mm. long, rounded obovate. The scales furnish the only distinction; these are minutely pubescent along the midrib and at the summit with soft appressed hairs, not thick and stubby as in *S. validus*.

**SCIRPUS occidentalis** (Watson), n. comb.

*Scirpus lacustris* var. *occidentalis* Watson, Bot. Cal. 2:218 (1880).

Perennial: rootstock horizontal, scaly: culm erect 1.2–2 m. high, .5–2 cm. in diameter at base, attenuate upward, usually hard especially in eastern specimens, olive green, smooth, minutely striate, leafless, or basal sheaths produced into acuminate blades broader than found in *S. validus* and sometimes 20 cm. long; sheaths with hyaline border becoming fibrillose; lowest sheath usually somewhat indurated: inflorescence a compound, usually erect and congested umbel of few to many spikelets, subtended by a single erect, attenuate, terete or obscurely 3-sided bract, channeled only at the base (1–7 cm. long); rays 0–5 cm. (rarely over 3 cm.) long, rather stout, plano-convex, the margins scabrous; bractlets vaginate, pale, spotted with ruddy brown, scarious, lacerate-fimbriate, slightly viscid-pubescent especially toward the summit, abruptly mucronate; secondary rays when present 0.3–2 cm. long: spikelets in capitate clusters of 2–7 or solitary (the greater number capitate in every umbel), pale grayish brown to dark rusty brown, cylindrical or ellipsoidal, obtuse, 4–5 by 10–18 mm., densely fruited, the scales overlapping  $\frac{1}{2}$  their length or more: scales  $\frac{1}{4}$ – $\frac{1}{3}$  longer than the achenes, oblong-ovate, obtuse and emarginate, spotted with ruddy brown, viscid-pubescent along the midrib and on the upper third with stubby hairs, the hyaline margin lacerate, ciliate; the strong, pale midrib exerted into a prominent scabrous tip: style 2-cleft to near the base; bristles 6, slightly shorter than the achene, reddish brown, retrorsely barbed: achene dark grayish brown, obovoid, abruptly acuminate 1.7–1.9 by 2.5–3 mm., in section unequally biconvex, hexagonally reticulate under a lens.

Type locality: "California ranging from San Diego county to British Columbia and eastward to Texas and Colorado."

*Scirpus lacustris* var. *occidentalis* Watson seems to have no type specimen extant. Dr. Watson cites no definite specimens and there is no specimen of *S. occidentalis* from San Diego county in the Gray or National Herbaria of a date previous to the publication of var.

*occidentalis*. In the Gray Herbarium are the following marked "*S. lacustris*, var. *occidentalis*" in Dr. Watson's handwriting: NEVADA, mouth of Run [?] River, alt. 5000 ft., July 1868 — immature (*Watson* 1212, King Exped.): BRITISH COLUMBIA, Saturna Island, 1858 — immature (*Lyall*, Oregon Boundary Comm.): CALIFORNIA, Yosemite Valley, 1866 — nearly mature (*Bolander* 6231, Geol. Surv. Cal.); Santa Barbara, 1875 — very immature (*Rothrock* 57, Wheeler Exped.): NEW MEXICO, 1873 — immature (*Loew*, Wheeler Exped.); 1851-52, — immature (*Wright* 1940). In the National Herbarium is one specimen marked var. *occidentalis* by Dr. Watson: NEVADA, Humboldt Pass, alt. 6000 ft., Sept., 1868 — fully mature (*Watson* 1212).

The discrepancy in the data of these two specimens of *Watson* 1212 is probably due to giving the same number to all collections of one species during the expedition.

Specimens examined.—Those cited above: NEWFOUNDLAND (*Waghorne* — very immature, but scales large and viscid): MAINE, Mattawamkeag Lake (*Fernald*); Ship Pond, Elliottsville (*Fernald* 419); Chemo Pond, Bradley (*Briggs*); Monhegan Island (*F. G. Smith*); Rangeley Lakes (*Furbish*): NEW HAMPSHIRE, Dixville Notch (*Boott*): MASSACHUSETTS, Revere (*Young*); Fresh Pond, Cambridge (*Boott*): NEW YORK, shore of Lake Ontario (*Wibbe*): ONTARIO, Sarnia (MACOUN 34,582): OHIO, Licking Co. (*Jones*): INDIANA, Lake Michigan basin (*Hill*, *Lansing* 962, *A. Chase* 345); ILLINOIS, South Chicago (*A. Chase* 1628): ROMEO, Desplaines valley just beyond Lake Michigan watershed (*Umbach*): WISCONSIN, Lake Michigan basin (*R. Bebb*): MISSOURI, Courtney (*Bush* 23): NEBRASKA, Middle Loup River, Thomas Co. (*Rydberg* 1388 in part): MONTANA, Madison River (*Rydberg* 2277); Madison River (*Shear* 521); Snake River (*A. & E. Nelson* 6571): WYOMING, Little Missouri Buttes (*Griffiths* 593): COLORADO, Canon City (*Brandegge*): UTAH (*Bishop*): NEW MEXICO (*Vasey*): ARIZONA (*Rothrock* 330a); Santa Cruz (*Pringle*); (*Vasey*); vicinity of Flagstaff (*MacDougal* 275): BRITISH COLUMBIA (*Lyall*): WASHINGTON, Cascade Mts. (*Tweedy* 2); Falcon Valley (*Suksdorf* 85); Lake Chelan (*Gorman* 697); Okanogan Co. (*Elmer* 539); (*Vasey* 11): OREGON (*E. Hall* 562); Wasco Co. (*Leiberg* 865); CALIFORNIA, San Bernardino Valley (*Parish* 956); Walkers Basin (*Rothrock* 280); Tulare Co. (*Coville & Funston* 1736); Placer Co. (*Vasey*).

*Scirpus occidentalis* is distinguished from *S. validus* by achene  $\frac{1}{3}$  larger, by scales  $\frac{1}{4}$ – $\frac{1}{3}$  longer than the achene and nearly twice as long as scales of *S. validus*, viscid-pubescent, overlapping  $\frac{1}{2}$  their length or more; by the cylindric, more densely fruited spikelets in capitate clusters; and by the denser umbels and harder culms. From *S. lacustris* L. it is distinguished by the 2-cleft style, lenticular achene, viscid-pubescent scales, cylindric, densely fruited spikelets, and by the terete or obscurely 3-sided involucre bract.



This species shows much variation. Specimens from New England and the Great Lakes have smaller culms, spikelets darker in color, often longer; the scales more viscid (in many western specimens scales are but very slightly viscid), and umbels less congested than usual in western specimens, though the latter vary from dense, globular heads to open umbels with rays 5 cm. long. Plants having this open umbel can be determined by the achene and scale.

**SCIRPUS heterochaetus**, n. sp.

Culms erect, 1-2 mm. high, 4-10 mm. in diameter at base, terete, usually hard, light green, smooth, minutely striate, leafless, or basal sheaths produced into acuminate blades 2-15 cm. long and 3-5 mm. wide; the sheaths with hyaline borders lacerate and slightly fibrillose: inflorescence an open, suberect compound umbel of 9-17 spikelets, subtended by a single erect attenuate terete bract, channeled only at the base (3.5-7 cm. long); rays 1-6 cm. long, very slender, plano-convex, smooth or slightly scabrous on the margins; bractlets vaginate, pale brown to wine color, long acuminate, the hyaline margin lacerate-fimbriate, smooth except the scabrous excurrent tip of the midrib; secondary rays .5-1.5 cm.: spikelets solitary, ovoid-oblong, acute or subacute, 3-4 by 8-10 mm., reddish brown: scales  $\frac{1}{2}$  longer than the achenes, ovate-oblong, subacute, deeply emarginate, thickly spotted with wine-color toward the summit, pale below, the hyaline margins erose, glabrous except the prominently excurrent scabrous, slender tip of the midrib: style 3-cleft to below the middle: bristles 2-4 (usually 2) slender, fragile, unequal, shorter than the achene (usually not over  $\frac{1}{2}$  the length of the achene), dark red, retrorsely barbed or nearly smooth: achene fuscous 1.7-1.8 by 2.6-3 mm., obovate, abruptly mucronate, in section triangular, the ventral side plane or slightly concave, the dorsal angle rounded, hexagonally reticulate under a lens.

Type: "*Brewer & Chickering*, swamps, Havana, N. Y., June 26, 1858," specimen in the National Herbarium, no. 27,519.

This is the form referred to (fide note on above specimen) by Dr. Gray in Manual, Fifth Ed. p. 563: "A slender variety with narrower heads, very smooth scales and shorter or fragile bristles, was sparingly collected by Rev. J. W. Chickering at Havana, N. Y."

Other specimens examined:—VERMONT, Milton, July 25, 1893 (*Grout*): NEW YORK, Havana (*Chickering* in Gray Herb.): ILLINOIS, Athens, July, 1869 (*E. Hall* in Herb. Field Columbian Mus. no. 35,203); MINNESOTA, Fort Snelling, July 24, 1888,—a robust specimen with immature spikelets (*Mearns*); Minnesota or South Dakota [no locality given] July 24, 1839 (*Geyer*, Nicollet's Northwestern Exped.): NEBRASKA ("Ex Father *Wibbe*"): OREGON, Swan Lake, Klamath Co. July 14, 1895 (*Applegate* 759): IDAHO, valley of Lake



Tesemini, Kootenai Co., specimen with slender culms 2 m. high, spikelets 23 in number, slightly larger than those of the other specimens, scales with scabrous midrib, otherwise glabrous; achenes very immature, bristles 2-4 very fragile as in the other specimens, doubtless a form of this species (*Sandberg* 687).

*Scirpus heterochaetus* is distinguished from *S. validus* and *S. occidentalis* by the 3-cleft style, by the triquetrous achene, by the fragile unequal bristles fewer and shorter, and by the glabrous scales. From *S. lacustris* L., to which it is closely allied, it is distinguished by the terete involucre bract, solitary spikelets, and fragile unequal bristles fewer and shorter. Apparently rare; the above specimens all lack rootstocks. It is worthy of note that four of the above specimens bear some note by the collector of variation from *S. lacustris* so called.

*SCIRPUS CALIFORNICUS* (C. A. Meyer) Britton, Ill. Fl. 1: 267 (1896).

*Elytrospermum Californicum* C. A. Meyer, Mém. Acad. St. Pétersb. (V.) 1: 201, pl. 2 (1831).

This remaining species of the *lacustris* group in this country has been recognized as distinct, and is so easily determined by its aristate scales and broad, dark red bristles plumose below, that it needs no delineation here.

The greater number of specimens examined were immature. In *Scirpus*, as in the other genera of *Cyperaceae* it is very important that plants be collected at maturity.

Thanks are due the Gray Herbarium, National Herbarium, and herbaria of the New England Botanical Club and of the Field Columbian Museum, for the loan of specimens, and to Prof. C. V. Piper for helpful criticism.

DIVISION OF AGROSTOLOGY, Department of Agriculture, Washington, D. C.

#### EXPLANATION OF PLATES 52 AND 53.

- a. *Scirpus validus* Vahl (*A. Chase* 1136, Chicago).
- b. *Scirpus lacustris* L. (*Reinsch*, Erlangen).
- c. *Scirpus occidentalis* (Watson) Chase (c. *A. Chase* 1628, South Chicago, illustrating Lake Michigan and New England form; cc. *Leiberg* 865, Oregon, illustrating the western form).
- d. *Scirpus heterochaetus* Chase (*Brewer & Chickering*, Havana, N. Y. type specimen).

Corresponding parts drawn on the same scale; inflorescence natural size; spikelet  $\times 5$  diam., achene with cross section, and scale  $\times 10$  diam.

## BRYOPHYTES OF THE MT. GREYLOCK REGION,—III.

A. LE ROY ANDREWS.

The mountain surface still yields returns for further effort expended, more slowly it is true, but each newly found species is of proportionately enhanced interest. The species listed below were collected on several trips made during the past spring and summer. Special attention paid to the closely related genera, *Bryum* and *Webera*, brought to light several good species, otherwise results are more or less "scattering."

Ragged Mountain is a spur of the mountain mass, of irregular contour and altitude, running in a generally northerly or slightly northeasterly direction, from the Bellows Pipe to North Adams, forming the eastern wall of the Notch. The eastern slopes of the mountain in Adams, as well as those of Ragged Mountain, show several species of more or less southern tendency. The Notch is perhaps in even greater degree than the Hopper, the abode of surprises, generally, though not always, of northern species, the isolated character of its moss and hepatic flora corresponding with our knowledge of New England mountain flora generally and offering a hint to collectors upon other mountains.

I again add brief notes as to altitude, distribution, etc. The species not previously reported are the following:

## MUSCI.

*Amblystegium varium* (Hedw.) Lindb. Decayed spot on tree at middle altitude. This is of the typical form, which, as occurring here and in the vicinity, generally is very distinct from the one variously treated as variety or species, *orthocladon*, which Prof. Cheney, however, considers unworthy of distinct treatment.

*Anacamptodon splachnoides* (Froelich) Brid. A specimen with a single capsule mixed with the last. Also on a decayed spot in beech-tree at higher altitude, full-fruited. This species, though not frequently met with, proves to be of general distribution in the vicinity.

*Brachythecium laetum* (Brid.) Br. & Sch. On wet bank in Notch, lower altitude.



*Brachythecium plumosum* (Sw.) Br. & Sch. Wet places at base of mountain in Notch.

*Brachythecium rivulare* Br. & Sch. In compact, round, yellowish cushions of more or less erect stems, near small brook at middle altitude.

*Bryum capillare* L. Not uncommon on ground and rocks of lower altitudes, but rarely fruiting. Found fruiting only on large rock at base in Adams. This seems to be a species of very general occurrence, but often unnoticed from its sterile condition. I have, among others, specimens from Pownal, Vermont.

*Bryum intermedium* Brid. Crevices of a small rock in clearing, middle altitude.

*Bryum pseudotriquetrum* Schwaegr. Occasional at middle or lower altitude, about springs or small brooks. *Philonotis fontana* is regularly a companion plant. The species is an attractive one, its long, frequently purple-shining seta sometimes showing a tendency to become broadly geniculate at the base.

*Dicranum montanum* Hedw. On bark of a dead tree near the summit. Not fruiting.

*Dicranum undulatum* Turn. On comparatively dry ground on east slope of Ragged Mt., North Adams. Very full-fruited.

*Dicranum viride* Schimp. On decayed spot in a beech-tree, not far below summit. Sterile.

*Eurhyncium Boscii* (Schwaegr.) Jaeg. A rather small, fruiting form on ground near road at base in Adams.

*Eurhyncium graminicolor* (Brid.) Paris. (*Hypnum Sullivantii* of Manual.) On rocks, middle altitude in Hopper.

*Hylocomium brevistrostrum* (Ehrh.) Br. & Sch. Wet sloping ground or rocks in woods, middle and higher altitude. Not fruiting.

*Hypnum cuspidatum* L. Swampy place at base of mountain in Adams. Sterile.

*Myurella Careyana* Sulliv. Small specimen from large rock in woods, middle altitude.

*Pogonatum brevicaulis* Beauv. Not uncommon on bare ground beside roads, at and near base of mountain in Adams and North Adams.

*Pylaisia velutina* Br. & Sch. Bark of trees in dense woods, middle altitude.

*Rhyncostegium serrulatum* (Hedw.) Jaeg. In considerable quan-

tity and well fruited, on ground, lower slopes of Ragged Mt., in North Adams. Fruit just reaching good maturity in early September.

*Thuidium paludosum* (Sulliv.) Rau & Hervey. Swampy place at base in Adams. Sterile.

*Webera annotina* (Hedw.) Schwaegr. This species was detected by Mrs. E. G. Britton, who kindly called my attention to the difference between its gemmae and the corresponding bodies in the case of *W. proligera*. It is a species of very uncommon occurrence and was growing on the bare ground of a moist bank in the Notch. No fruit was seen.

*Webera cruda* (L.) Schwaegr. This species was growing in a similar locality, not far from the last, and was also identified by Mrs. Britton. The plants were fruiting abundantly.

*Webera proligera* (Lindb.) Kindb. Moist banks by roads near summit, also toward base at Adams and in Notch. From the last locality I have a single small tuft showing this species and *W. annotina* intimately mixed together. The specimens occurring near the summit display regularly much longer, flexuous stems, with distant, darker green leaves, giving superficially a very different aspect from those of lower altitude, which latter, except for the difference of the propagula, closely simulate *W. annotina*. The present species has been considered uncommon in America, but may readily have been overlooked. In this connection I might mention finding specimens in a similar locality in the mountain town of Florida (Mass.), which bore abundant fruit, the capsules just reaching maturity when collected (June 28, 1903).

#### HEPATICAE.

*Anthoceros laevis* L. Small specimen from wet bank in Notch, with *Blasia pusilla*.

*Bazzania triangularis* (Schleich.) Lindb. (*B. deflexa* of Manual.) Perpendicular surface of a large rock in woods, middle altitude. Dr. A. W. Evans kindly identified this specimen.

*Frullania Brittoniae* Evans. (*F. dilatata* of Manual.) On bark of tree in Notch. Also on rock at Bellows Pipe.

*Geocalyx graveolens* (Schrader) Nees. On ground, middle and lower altitudes. Occasionally fruiting.

*Kantia Trichomanis* (L.) S. F. Gray. On ground at various points,



lower altitude. Not fruiting; occasionally showing pseudopodia and gemmae.

*Moerckia Flotowiana* (Nees) Schiffn. This species occurs sparingly on a wet bank in the Notch. It is new to New England, and I take the liberty of quoting from information kindly furnished me by Dr. Evans as to its relationships and American occurrence. "*Moerckia Flotowiana* (Nees) Schiffn. is a plant which Nees von Esenbeck originally referred to *Pallavicinia Lyellii* as a variety, and which has until very recently been considered a variety of *Moerckia* (or *Pallavicinia*) *Hibernica*. Schiffner maintains in a recent paper that the plant is specifically distinct from *M. Hibernica*. Nees von Esenbeck, in 1838, reported the species from Newfoundland, but it has not since been recorded from eastern America. It occurs in the Harri-man collections from Alaska."

*Nardia crenulata* (Smith) Lindb. On bare ground at base in Cheshire, also in Notch.

*Pellia epiphylla* (L.) Corda. Wet ground in various places and at all altitudes. Not conspicuous except when fruiting, in April.

*Plagiochila asplenoides* (L.) Dumort. At lower and middle altitudes, especially about beds of small mountain brooks. Leaves entire or denticulate.

UNIVERSITY OF WEST VIRGINIA, Morgantown.

## A NEW HYBRID FERN FROM VERMONT.

MARGARET SLOSSON.

*Dryopteris Pittsfordensis*, hyb. nov.—Mature sporophyte large, 1½–2, or more feet tall, resembling that of *D. spinulosa dilatata*, the young fronds like those of *D. marginalis* with the lowermost pair of pinnae enlarged, partially evergreen, the sporophylls withering in late autumn.

Rootstock decumbent, as in *D. spinulosa*, between which and *D. marginalis* the plant is a probable hybrid. Fronds fasciculate, cro-siers densely clothed with pale brown scales; stipes 6–12 inches long, usually about one-third the length of the frond, stramineous, browning with age, especially below, deeply furrowed along the face, and clothed with a mixture of broad, narrowly ovate, and linear-lance-olate acuminate entire or lacerated brown scales, darkest below and often with blackish brown centres, paler and transparent above,

becoming chaffy along the strongly grooved and winged rachises; fibro-vascular bundles 3-5 or 7. Laminae 10-20 or more inches long, 6-10 inches broad, oblong or ovate lanceolate, or triangular-ovate with long acuminate apices, broadest just below the middle, bipinnate or, in the largest forms, tripinnate, at least below; pinnae mostly ovate or oblong lanceolate, long-acuminate, the lowermost pair much the broadest and irregularly deltoid, the superior pinnules much the longest, lobes irregularly spinulose or sharply toothed; texture subcoriaceous, softly downy in the young fronds, and wrinkled on the face from the deep furrows of the midribs and veins; sori elevated, submarginal, reniform, indusia coriaceous; veins pinnately branched and forked.

Syn. *Nephrodium Pittsfordense* Davenport, in litt.

The special characters of this plant lie in the long-acuminated outline of the fronds and pinnae, the submarginal elevated sori and cori-



aceous indusia, and the occasional presence on the older stipes of large deeply lobed or lacerated appressed scales with a broad dark base and the exterior lobe greatly elongated. The scales of the stipes are for the most part attached at the base by a well rounded sinus with either entire or ciliated margins; the smaller ones much like those on some of the Polypodiums, as for example, *P. polypodioides*.

In the subcoriaceous texture, and to some extent in the coloring, of the fronds, and in the conspicuous submarginal elevated sori appearing almost cork-like in age, the plant resembles *D. marginalis*. The toothed margins of the fronds, on the other hand, suggest *D. spinulosa*. Both

at first sight and on close examination the hybrid character of the plant appears unquestionable.



I first found this plant in 1895, growing among stones by a roadside in Pittsford, Rutland County, Vermont. The specimens formed a large clump. Nearby grew *D. marginalis* and a form of *D. spinulosa*.

In 1901 the hybrid clump was transplanted to Mr. George E. Davenport's garden in Medford, Massachusetts, where it has remained since. It has produced mostly smaller fronds in the new location than in the old, but apparently has lost none of its peculiar characteristics at any time.

Type specimens are in the herbarium of the New York Botanical Garden.

I am greatly indebted to Mr. Davenport for his kind assistance in the study of this fern.

NOTE BY MR. DAVENPORT.—Since Miss Slosson's fern was transplanted to my garden in 1901 it has increased to five plants from young crowns growing out from the main rootstalk. One of the new plants was sent to Miss Slosson and another has been reserved for the Botanical Garden at Cambridge. During the past two seasons I have pressed all available fronds from the original plant and specimens of these will be deposited in the Gray Herbarium, the Herbarium of the New England Botanical Club, and the Davenport Herbarium of the Massachusetts Horticultural Society. In 1893 Mr. Raynal Dodge collected some specimens which he regarded as of hybrid origin between *Nephrodium spinulosum* and *N. marginale*. These I have had under examination for some time, but in the absence of the rootstalk, and other necessary data, I have not been able to satisfy myself as to their exact status. They differ greatly, however, from Miss Slosson's fern.—G. E. D.

EXPLANATION OF FIGURES:—Fig. 1, portion of a pinna of *Dryopteris Pittsfordensis*,  $\times 1\frac{1}{2}$ . Fig. 2, part of a pinna of *D. spinulosa intermedia*,  $\times 1\frac{1}{2}$ . Fig. 3, part of a pinna of *D. marginalis*,  $\times 1\frac{1}{2}$ .

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THE RANGE OF *SAURURUS CERNUUS* EXTENDED INTO RHODE ISLAND.—In August, 1902, while exploring the meadowlands stretching from Adamsville, Rhode Island, to the ocean shore, Judge Benjamin Cook, Jr., ran across some plants, which were at once recognized as *Saururus cernuus*, L. One year later, July 29, 1903, Mr. Cook and the writer visited the locality and found the plants at

the height of their flowering period. As *Saururus cernuus* does not appear to be recorded from Rhode Island, the discovery was considered worthy of note, and fresh specimens were sent to the Gray Herbarium and the Herbarium of Brown University. The locality in which these plants were found is about two and one-half miles southwest of Adamsville, Rhode Island. The plants seem to be well established, for a small stream running through an open meadow was literally choked with *Saururus* for more than fifty yards of its course. A more extended exploration of that neighborhood failed to reveal another spot where the plants grew. The new station is interesting from the fact that it brings *Saururus cernuus* well across Rhode Island, and very nearly into Massachusetts.—S. N. F. SANFORD, Fall River, Massachusetts.

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SOME INTRODUCED PLANTS OF CONNECTICUT.—A group of plants introduced in Connecticut, probably with grain, has already been noted (RHODORA III: 60), and those growing in another place near by seem worthy of a little space. This field was sowed in the spring of 1902 with oats bought at a feed-store and also with a mixture of timothy and clover seed. The first year I found growing among the oats, sparingly, *Camelina sativa*, Crantz. besides a number of other more common weeds of grain fields, such as *Brassica* spp., *Spergula arvensis*, L., *Agrostemma Githago*, L., *Linum usitatissimum*, L., and *Bromus secalinus*, L. In 1903 an abundance of *Viola arvensis*, Murr., in May was followed in July by a quantity of *Cuscuta Epithymum*, Murr., in one patch, with occasional plants of *Matricaria inodora*, L., and perhaps seven or eight individuals of *Anthemis tinctoria*, L. The list is finished with *Crepis virens*, L., which was found scattered over the field on Sept. 3. Of the above species *Camelina sativa*, L., and *Matricaria inodora*, L. are not previously reported from the state so far as I know, while *Crepis virens*, L. does not appear in any list at hand although credited to the state in Britton's Manual. The *Camelina* can hardly claim a permanent place in our flora, as it seems to have already vanished; the *Matricaria* will be looked for with interest in 1904; but the *Crepis* has every appearance of being well established.—E. B. HARGER, Oxford, Connecticut.



BULBLETS OF MICROSTYLIS OPHIOGLOSSOIDES.—Upon July 30th, 1903, it was my good fortune to find an unusually fine specimen of *Microstylis ophioglossoides*, the stem measuring eleven inches from top of bulb to tip of raceme. While I was preparing it for the press my attention was attracted to several bulblets which had formed underneath the loose outer coat of the bulb very much as the bulblets form upon *Vallota* bulbs. They were pearly white and closely resembled small kernels of rice. There was no regularity in their position upon the mature bulb. One of the bulblets had already sent up a tiny leaf upon a stem half an inch in length and plainly exhibited the same double structure and the same general form as mature bulbs. *Microstylis ophioglossoides* is not uncommon in this locality but it seems to be a shy seeder, as I seldom find more than one or two capsules formed from a raceme of blossoms. Therefore it would seem as if Nature provided for its propagation in another method than by seed.—HARRIET A. NYE, Fairfield Center, Maine.

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CLEOME SERRULATA IN MAINE.—On August 3rd, 1903, a party of ladies were waiting for the train at Moosehead Inn Station on the line of the Canadian Pacific Railroad. Being interested in botany they improved the opportunity by seeking for novel flowers, and just as the train was coming into the station one of their number, Miss Harriet Burr, found a small plant about five inches in height growing in the very middle of the railroad track. This was submitted to the writer and by him determined as *Cleome serrulata*, Pursh. The specimen was sent to Mr. M. L. Fernald of the Gray Herbarium who verified the identification and reported that it was new to the State.—O. W. KNIGHT, Bangor, Maine.

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HELENium NUDIFLORUM IN GROTON, CONNECTICUT.—On July 29th, 1903, while walking through the mowing lot at Esker Point, near Noank, I came across a plant in bud which looked like a *Rudbeckia*, but left it to develop. On my next trip a few days afterwards I found it unfolded, and it proved to be *Helenium nudiflorum* Nutt. This time I found four or five other plants of the same species a few yards away. As the grass was mowed soon after, I saw no more

of it, but shall hope to greet it again another year. Gray's Manual gives the range of this species as from Illinois and Missouri to North Carolina and Texas. It has, however, been known for some time near Providence, Rhode Island (see W. W. Bailey, RHODORA, iv. 198), and I learn from the Gray Herbarium that Mr. J. C. Parlin has found it spreading from wool-waste at North Berwick, Maine.

It seems probable that it may have been introduced at the Connecticut station in grass seed.—FRANCES M. GRAVES, New London, Connecticut.

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FURTHER STATIONS FOR *BOTRYCHIUM MATRICARIAEFOLIUM* IN CONNECTICUT.—Bishop's list gives only two stations for *Botrychium matricariaefolium*, one in Sherman (Fairfield County), the other in Franklin (New London County). In RHODORA, 3:36 (1901) Mr. A. W. Driggs notes the finding of *B. matricariaefolium* in West Hartford (Hartford County). In June, 1901, the writer collected several specimens at Mansfield (Tolland County). During the summer of 1902 at Cornwall Bridge (Litchfield County) many specimens were found; and at Kent Falls, North Kent, in the same county one plant was collected. Last summer (1903) this species was found to be abundant on the mountain slopes in Salisbury (Litchfield County). Specimens from these stations are preserved in the writer's herbarium.

As this plant has been found in five of the eight counties and in widely separated parts of the state, it is probable that it has been overlooked and will be found to be generally distributed throughout.—A. VINCENT OSMUN, Amherst, Massachusetts.

*Vol. 6. no. 63, including pages 45 to 64, was issued 7 March, 1904.*



Agnes Chase, del.

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Fig. a, *Scirpus validus*; fig. b, *S. lacustris*.







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Fig. c, *Scirpus occidentalis*; fig. d, *S. heterochaetus*.





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